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NEW AND LITTLE-KNOWN SPECIES OF THE WATER MITE GENERA *TARTAROTHYAS, PSEUDOHYDRYPHANTES AND CYCLOHYDRYPHANTES* FROM AUSTRALIA (CHELICERATA: ACTINEDIDA: HYDRYPHANTIDAE)

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Abstract

Harvey, M. S., 1987. New and little-known species of the water mite genera *Tartarothyas, Pseudohydryphantes* and *Cyclohydryphantes* from Australia (Chelicerata: Actinedida: Hydryphantidae). *Mem. Mus. Vict.* 48: 107-122.

The following new water mite species are described from Australia: *Tartarothyas boultoni* (from Victoria), *Pseudohydryphantes doegi* (Western Australia), *P. vepres* (Victoria, New South Wales), *P. occabus* (Victoria), *P. cooki* (Victoria) and *Cyclohydryphantes mutarnee* (Queensland). The first is the only member of the genus *Tartarothyas* to be recorded from outside the Holarctic region. *Pseudohydryphantes amatus* Cook and *P. stylatus* Cook are recorded from Victoria for the first time.

Introduction

The Hydryphantidae is currently represented in Australia by 10 described species in five genera: *Hydryphantes* Koch, *Diplodontus* Duges, *Cyclohydryphantes* Lundblad, *Pseudohydryphantes* Viets and *Wandesia* Schechtel (Cook, 1986). Recent field work has uncovered several previously undescribed species in the genera *Tartarothyas, Pseudohydryphantes* and *Cyclohydryphantes,* as well as representatives of two species of *Pseudohydryphantes* from Victoria previously known only from Tasmania. These species are treated below.

Unless otherwise stated, the material was collected by the Museum of Victoria's Department of Environmental Records (previously Biological Survey). Specimens are lodged in the Museum of Victoria, Melbourne (NMV), the Australian Museum, Sydney (AM), the Australian National Insect Collection, Canberra (ANIC), the Western Australian Museum, Perth (WAM), the Field Museum of Natural History, Chicago (FMNH) and the Canadian National Collection, Ottawa (CNC). Many specimens are mounted on microscope slides in glycerine jelly. Measurements were taken to the nearest 5 μm; those that could not be measured are shown as "?". Dimensions are usually given as length divided by width. Morphological terminology follows Cook (1974) except for the terminology of the leg segments which follows Smith (1976), and for the terminology of the glandularia which is as follows. Each of the species described below possesses six pairs of dorsoglandularia (dg), five pairs of lateroglandularia (lg) and five pairs of ventroglandularia (vg), which are numbered sequentially (e.g. Figs. 1-2). This is also true for many other hydryphantids. Under previous systems, the first two pairs of ventroglandularia were termed epimeroglandularia (e.g. Lundblad, 1927; Cook, 1974) or coxoglandularia (e.g. Mitchell, 1953) due to their association with the coxal groups. They are here referred to the ventroglandularia system simply for ease of reference.

Hydryphantidae

Tartarothyas Viets

Tartarothyas Viets, 1934: 133.–Cook, 1974: 87. (Type species *Tartarothyas micrommata* Viets, 1934, by original designation.)

Vietsthyas Motas, Tanasachi & Orghidan, 1957: 104. (Type species *Vietsthyas fonticola* Motas, Tanasachi & Orghidan, 1957, by original designation. Synonymized by Motas & Tanasachi, 1962.)

Diagnosis. Legs without swimming hairs; dorsal

plates absent; peripheral glandularia platelets absent; lateral eyes reduced and not on ocular tubercles; median eye absent; body not elongate.

Remarks. The genus *Tartarothyas* currently contains three named species from Europe: *T. micrommata* Viets, *T. romanica* Husianatschi and *T. fonticola* (Motas, Tanasachi & Orghidan). A single deutonymph has been collected in Michigan, USA (Cook, 1974) but adults have not been taken and the species is unnamed (D.R. Cook, pers. comm.). Dr I.M. Smith (pers. comm.) reports that two undescribed species are represented in the CNC collections from Canada and USA.

Tartarothyas boultoni sp. nov.

Figures 1-9

Type material. Holotype: Victoria, Werribee River, 11.5 km NNW of Ballan, M.S. Harvey, 20 Jun 1985, NMV K231(♀, slide).

Paratypes: Same data as holotype, NMV K232-237(6 deutonymphs, slides and fluid). Same data except A.J.Boulton, 24 May 1983, NMV K238-244(2 ♂♂, 4 ♀♀, 1 deutonymph, slides). Same data except 7 Jun 1983, NMV K245-251(2 ♂♂, 4 ♀♀, 1 deutonymph, slides). Same data except 22 Jun 1983, NMV K253-295(9 ♂♂, 20 ♀♀, 14 deutonymphs, slides and fluid); FMNH(2 ♂♂, 2 ♀♀, 2 deutonymphs, fluid); CNC(2 ♂♂, 2 ♀♀, 2 deutonymphs, fluid). Same data except 11 Oct 1983 (NMV K296-297, 2 ♀♀, slides). Same data except 25 Nov 1982 (NMV K298, 1 deutonymph, fluid).

Diagnosis. dg3 on about same level as postocularia.

Description. Adults. Integument papillate. Two pairs of lenticular lateral eyes present (Fig. 1). Six pairs of dorsoglandularia, five pairs of lateroglandularia and five pairs of ventroglandularia present, without associated sclerites; dg3 on same level or slightly anterior to postocularia (Figs. 1-2). Genital flaps with 7-10 (male), 9-13 (female) pairs of setae (Figs. 3-4); three pairs of acetabula (Figs. 3-4), first pair longest, third pair ovoid and on stalks. Ejaculatory complex not studied. Cheliceral claw with 15-19 short teeth; cheliceral lamella nearly as long as claw, not serrate (Fig. 8). Palp (Fig. 7): tibia with a thickened, sub-distal seta on medial surface and with distal extension; tarsus with three terminal processes. Capitulum with two stout setae on anterior margin. Coxae I-II with 1-2 stout setae on distal ends (Fig. 2). Legs (Figs. 5-6) without swimming setae; pedal claws completely smooth. Anus without associated sclerite (Fig. 2).

Dimensions (μm): male (female): body 720-760/520-610 (830-1010/540-670); capitulum length 205 (220-270), genital field 180-190/145-160 (210-250/160-205); palp: trochanter 45 (50-55), femur 80-90 (85-100), genu 55-65 (55-65), tibia 100-135 (135-155), tarsus 40-50 (50-60); leg 1: trochanter 65-100 (75-80), basifemur 70-120 (80-100), telofemur 85-95 (95-115), genu 115-135 (120-150), tibia 140-160 (150-185), tarsus 140-165/40-60 (130-170/55-65); leg IV: trochanter 120 (110-150), basifemur 95-110 (105-145), telofemur 115-130 (130-160), genu 165-190 (180-225), tibia 200-225 (215-270), tarsus 155-175/40-45 (165-210/45-55).

Deutonymphs. Two pairs of lenticular lateral eyes present. Glandularia as in adults except that vg3 lacks a glandularium and is reduced to a single seta. Genital flaps small and with 3-4 pairs of setae (Fig. 9); two pairs of acetabula, anterior pair ovoid, posterior pair circular and on stalks (Fig. 9). Cheliceral claw with 9-10 short teeth. Palp and legs as in adults. Coxa I with one stout seta on distal end.

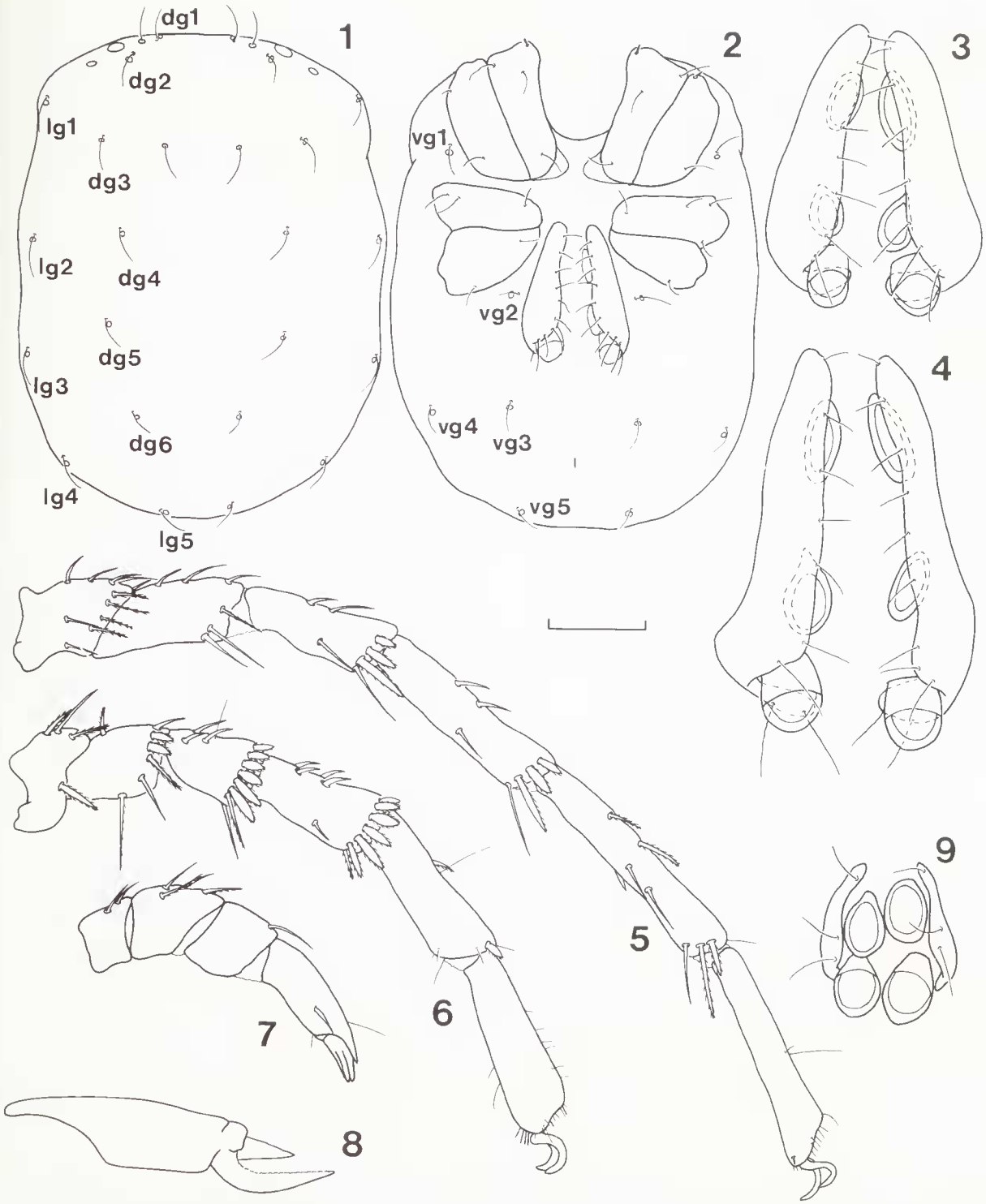
Etymology. This species is named for Andrew Boulton, collector of most of the known specimens.

Remarks. Tartarothyas boultoni differs from the three described European species by the position of dg3 which is on about the same level as the postocularia, whereas in the three other species it is situated well posterior to the postocularia. I have been able to compare this species with the female of *T. romanica* from Sweden referred to by Lundblad (1962) which is lodged in the Swedish Museum of Natural History (prep. 5343) and they are clearly congeneric. The collection site was described by Boulton and Smith (1985).

Pseudohydryphantes Viets

Pseudohydryphantes Viets, 1907: 142.–Viets, 1936: 144.–Cook, 1974: 88. (Type species *Pseudohydryphantes parvulus* Viets, 1907, by monotypy.)

Diagnosis. Swimming hairs present on legs III, IV and occasionally on leg II; dorsal plates absent; peripheral glandularia platelets absent;



Figures 1-9. *Tartarothyas boultoni* sp. nov. Figs. 1-2, paratype female, K263. Fig. 3, paratype male, K245. Figs. 4-8, holotype female. Fig. 9, paratype deutonymph, K232. Fig. 1 Dorsal view. Fig. 2 Ventral view. Fig. 3 Genital field. Fig. 4 Genital field. Fig. 5 Left leg IV. Fig. 6 Left leg 1. Fig. 7 Left palp. Fig. 8 Left chelicera. Fig. 9. Genital field.
Scale line = 180 μm (Figs. 1-2), 70 μm (Figs. 3-4), 100 μm (Figs. 5-8), 50 μm (Fig. 9).

Key to Australasian species of *Pseudohydryphantes*

1. Glandularia completely surrounded by sclerotized rings (Fig. 36) 2
- Glandularia only partially surrounded by sclerotized rings thus forming crescents (e.g. Fig. 13) 3
2. Tarsal claws with ventral serrations; chelicerae not elongate; capitulum without extension ..... *P. bebelus*
- Tarsal claws without ventral serrations (Figs. 40-41); chelicerae elongate (Fig. 43); capitulum with long, down-turned anterior extension to accomodate chelicerae ..... *P. occabus*
3. Tarsal claws with large, ventral serrations (Fig. 31) ..... *P. vepres*
- Tarsal claws ventrally smooth or with one small ventral tooth 4
4. Tarsal claws with one small ventral tooth (Figs. 21-22) ..... *P. doegi*
- Tarsal claws without ventral teeth 5
5. Chelicerae elongate; capitulum with long, down-turned anterior extension to accomodate chelicerae ..... *P. stylatus*
- Chelicerae not elongate; capitulum without extension 6
6. Setae on genital flaps very short (Fig. 12) ..... *P. amatus*
- Setae on genital flaps long (Fig. 46) 7
7. Sclerites associated with glandularia small, not crescent shaped; pedal tarsi, especially of leg I, noticably thickened ..... *P. crassipes*
- Sclerites associated with glandularia crescent shaped (Figs. 44-45); pedal tarsi not noticably thickened (Fig. 48) ..... *P. cooki*

lateral eyes on ocular tubercles; median eye present; body not elongate.

Remarks. The genus *Pseudohydryphantes* currently contains seven described species: *P. parvulus* Viets (Europe), *P. latipalpus* Marshall (Alaska), *P. orbicularis* Marshall (Canada), *P. bebelus* Cook (New Zealand), *P. amatus* Cook (Tasmania), *P. crassipes* Cook (Tasmania) and *P. stylatus* Cook (Tasmania). The species described below are the first to be recorded from mainland Australia, and interestingly, two appear to be more similar to the sole New Zealand species than to the other Australian species. The new species can be compared only with the four austral species, because of the poor published descriptions of the three Holarctic species, especially *P. latipalpus* and *P. orbicularis*.

Pseudohydryphantes amatus Cook

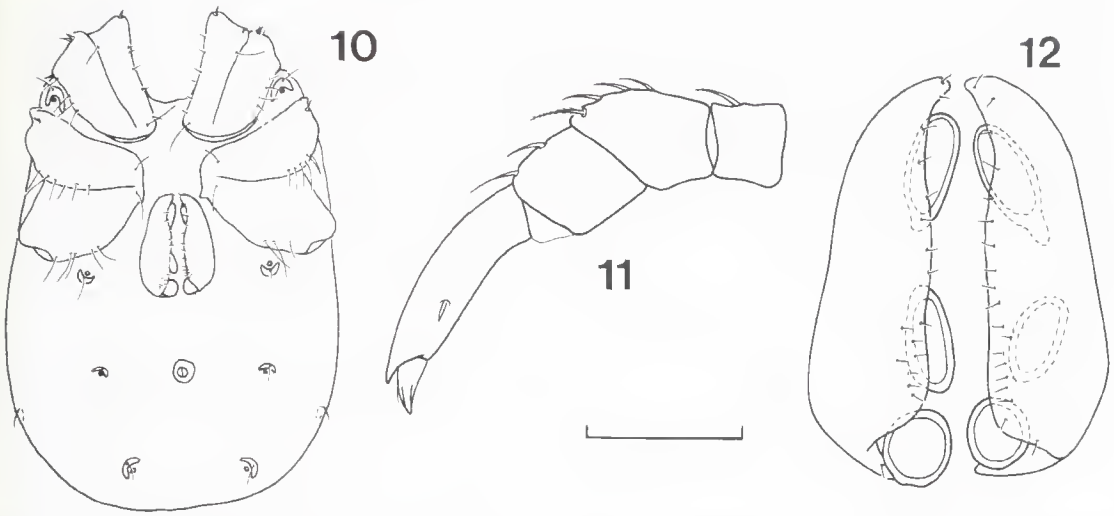
Figures 10-12

Pseudohydryphantes amatus Cook, 1986: 17-18, figs. 66-72.

Material examined. Victoria, Bendoc River, Bendoc, D.R. Cook, M.S. Harvey and A.J. Boulton, 6 Apr 1985, NMV(1 ♂, slide).

Description. Male: Median eye pigmented and situated anterior to postocularia platelets; postocularia on same level as dg3 but posterior to median eye. Six pairs of dorsoglandularia, five pairs of lateroglandularia and five pairs of ventroglandularia present; sclerites associated with glandularia crescent shaped (Fig. 10); vg3 on same level as anus (Fig. 10). Genital flaps narrow, mesal edge with a row of short setae (Fig. 12); three pairs of acetabula (Fig. 12), first pair longest; first two pairs elliptical; third pair ovoid. Ejaculatory complex with proximal arm nearly as long as proximal chamber. Chelicera of normal proportions, cheliceral claw with 10 short teeth; cheliceral lamella nearly as long as claw, serrate. Palp (Fig. 11): tibia with a thickened, subdistal seta on medial surface and with distal extension. Coxae I-III with 1-2 (usually 1) stout setae on distal ends (Fig. 10). Legs III and IV with swimming setae arranged as follows: leg III: telofemur 2, genu 9, tibia 9; leg IV: telofemur 2, genu 9, tibia 8. Pedal claws without serrations, but each with a dorsal tooth. Anus surrounded by sclerotized ring (Fig. 10).

Dimensions (μm): body 810/590; capitulum length 225; chelicera length 295; genital field 170/125; palp: trochanter 50, femur 80, genu 60,



Figures 10-12. *Pseudohydryphantes amatus* Cook, male from Bendoc, Victoria. Fig. 10 Ventral view. Fig. 11 Right palp. Fig. 12 Genital field. Scale line = 250 μm (Fig. 10), 100 μm (Fig. 11), 70 μm (Fig. 12).

tibia 145, tarsus 40; leg I: trochanter 65, basifemur 105, telofemur 80, genu 110, tibia 130, tarsus 150/50; leg IV: trochanter 115, basifemur 85, telofemur 115, genu 150, tibia 185, tarsus 170/40.

Remarks. This species was originally described from two females collected in Tasmania and is easily distinguished from other members of the genus by the short setae on the genital flaps.

Pseudohydryphantes stylatus Cook

Figures 13-17

Pseudohydryphantes stylatus Cook, 1986: 17, figs. 59-65.

Material examined. Victoria, Sandy Waterhole Creek, Genoa, 37°23'S 149°26'E, 24 Feb 1976 (NMV, 1 ♂, 1 ♀, slides).

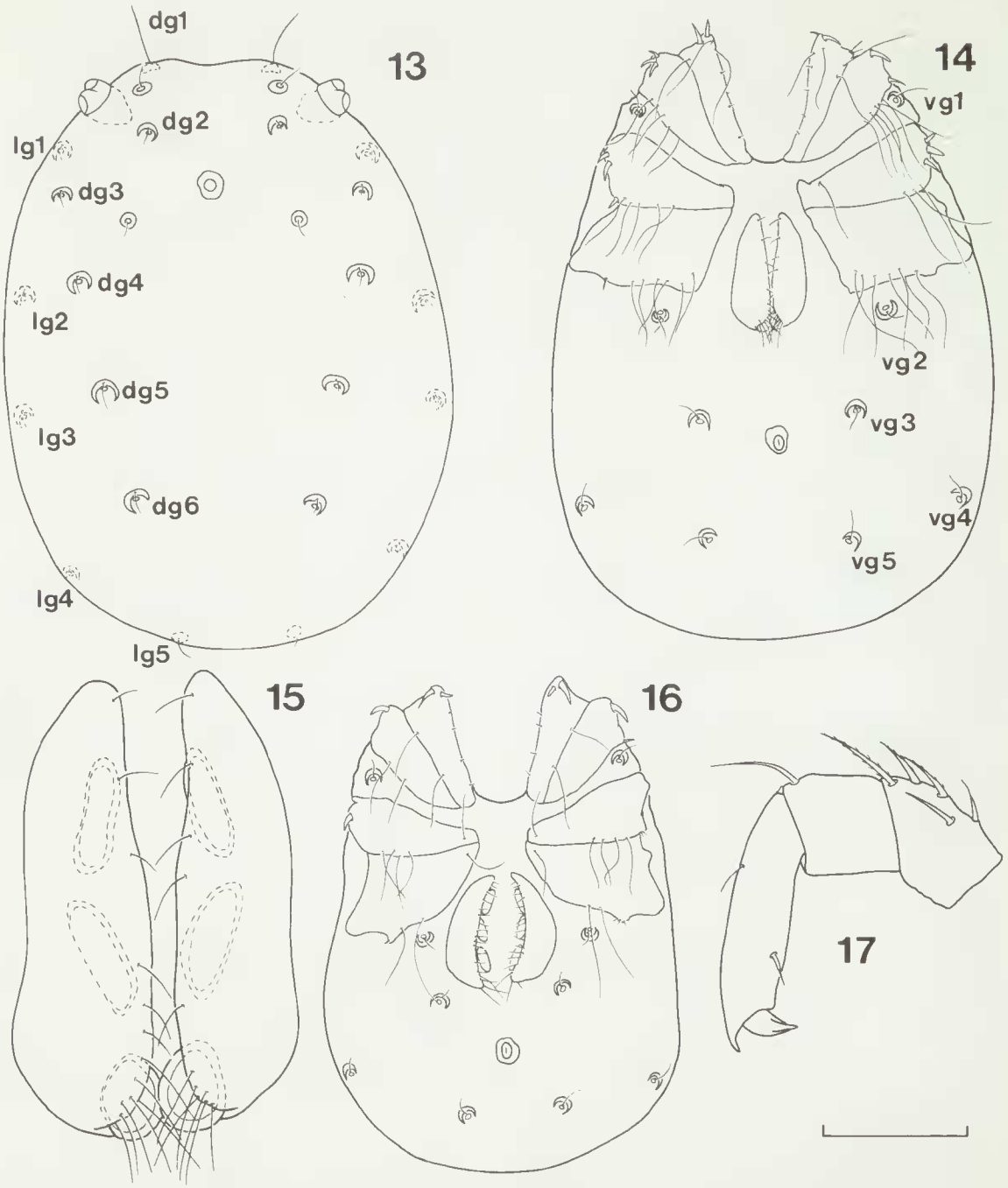
Supplementary description. Postocularia situated posterior to dg3 and median eye (Fig. 13). Six pairs of dorsoglandularia, five pairs of lateroglandularia and five pairs of ventroglandularia present; sclerites associated with glandularia crescent shaped (Figs. 13, 14, 16); vg3 of males closer to genital field than to anus (Fig. 16), vg3 of females slightly anterior to anus (Fig. 14). Genital flaps of female narrow, with a mesal row of long setae, especially on posterior portion (Fig. 15); three pairs of acetabula, females with first two pairs elongate and third pair ovoid (Fig. 15). Chelicera elongate. Palp (Fig. 17): tibia of female with a thickened sub-distal seta on medial surface and with distal extension. Coxae I-III with 1-3 stout setae on distal ends (Figs. 13, 16). Legs III and IV with swimming setae arranged as follows: leg III: male: telofemur 2, genu ?, tibia 12; female: telofemur 0, genu 10, tibia 12; leg IV: male: telofemur 2, genu 15, tibia 14; female: telofemur 2, genu 13, tibia 15. Pedal claws without serrations, but with a dorsal tooth. Anus surrounded by sclerotized ring.

Dimensions (μm): male (female): body 970/640 (1080/850); capitulum 320 (270); chelicera length ? (490); genital field 215/210 (210/145); palp: trochanter ? (?), femur 110 (105), genu 80 (80), tibia 200 (190), tarsus 45 (40); leg I: trochanter 70 (?), basifemur 100 (90), telofemur 105 (100), genu 140 (140), tibia 170 (180), tarsus 190/65 (200/60); leg IV: trochanter 125 (140), basifemur 145 (120), telofemur 180 (185), genu 255 (280), tibia 275 (295), tarsus 265/55 (230/50).

Remarks. Pseudohydryphantes stylatus was originally described from a single male collected in north-western Tasmania.

This species exhibits three very interesting forms of sexual dimorphism previously unrecorded in the genus and that are very rare in the family.

(1) Males possess a very small, sub-basal thickened seta on the palpal tibia (Cook, 1986, fig.



Figures 13-17. *Pseudohydryphantes stylatus* Cook, from Genoa, Victoria. Figs. 13-15, 17, female. Fig. 16, male. Fig. 13 Dorsal view. Fig. 14 Ventral view. Fig. 15 Genital field. Fig. 16 Ventral view. Fig. 17 Right palp, without trochanter. Scale line = 250 μm (Figs. 13-14, 16), 70 μm (Fig. 15), 100 μm (Fig. 17).

63), whereas the females possess a larger, subdistal seta (Fig. 17). This is somewhat reminiscent of *Cowichania interstitialis* Smith in which the males possess a large seta and the females possess a reduced seta (Smith, 1983).

(2) vg3 of the males is situated very close to the genital field (Fig. 17), whereas in the females it is situated near the anus (Fig. 14), as in all other

species of the genus, with the exception of *P. occabus*.

(3) dg3 of the males is situated close to the postocularia making dg4 the most laterally placed dorsoglandularium (Cook, 1986, fig. 61), whereas in the female, dg3 is laterally displaced and is situated as laterally as dg4 (Fig. 13).

Pseudohydryphantes doegi sp. nov.

Figures 18-25

Type material. Holotype: Western Australia, Poorginup Swamp, 34°33'S, 116°44'E, M.S. Harvey and T.J. Doeg, 4 Sep 1985, NMV K299(♂, slide).

Paratypes: Same data as holotype, NMV K300-304(1 ♂, 4 ♀♀, slides and fluid); WAM 85/1493-1494(2 ♀♀, slides).

Diagnosis. Pedal claws with single ventral tooth; sclerites associated with glandularia crescent shaped; chelicerae not elongate.

Description. Integument papillate. Lateral eyes on ocular tubercles; anterior-lateral eye about same size as posterior-lateral eye; postocularia posterior to median eye and to dg3 (Fig. 18). Six pairs of dorsoglandularia, five pairs of lateroglandularia and five pairs of ventroglandularia present (Figs. 18-19); sclerites associated with glandularia crescent shaped (Figs. 18-19), but the left vg3 of the male paratype has an anomolous, complete, somewhat reduced, ring; vg3 slightly anterior to anus and vg4, but not approaching genital flaps (Fig. 19). Genital flaps of male wider than those of female, mesal edge with a row of long setae, especially on posterior edge in male (Figs. 20-21); three pairs of acetabula (Figs. 20-21), second pair longest; first two pairs elliptical; third pair ovoid. Ejaculatory complex with proximal arm nearly as long as proximal chamber. Chelicera (Fig. 25) of normal proportions, cheliceral claw curved, with 11-13 short teeth; cheliceral lamella about half as long as claw, serrate. Capitulum without long, down-turned anterior extension. Palp (Fig. 24): tibia with a thickened sub-distal seta on medial surface and with distal extension. Coxae I-III with 1-2 (usually 1) stout setae on distal ends (Fig. 19). Legs II, III and IV with swimming setae arranged as follows: leg II: genu 0-1; leg III: telofemur 1, genu 9-10, tibia 9-11; leg IV: telofemur 3, genu 9-13, tibia 9-11. Pedal claws without serrations, but with a dorsal and a ventral tooth (Figs. 22-23). Anus surrounded by sclerotized ring (Fig. 19).

Dimensions (μm): male (female): body 790-800/640-660 (840-1120/690-800); capitulum length 210 (225-240); chelicera length ? (325-360); genital field 140-145/130-135 (175-190/155-170); palp: trochanter 50-55 (50-55), femur 85-90 (85-100), genu 50-55 (55-65), tibia 135 (145-160), tarsus 40 (45); leg I: trochanter 60-65 (60-65), basifemur 50-55 (55-65), telofemur 75 (80-100), genu 110 (125-140), tibia 120-125 (140-155), tarsus 145-150/45-50 (155-170/50-55); leg IV: trochanter 120 (125-145), basifemur 90 (100-110), telofemur 125 (140-165), genu 190 (215-250), tibia 200-205 (230-270), tarsus 175/40 (190-220/45).

Etymology. This species is named for Tim Doeg who assisted in the collection of the specimens.

Remarks. Pseudohydryphantes doegi was collected in a swamp amongst reeds and other plant material and is the first Australian species to be taken from standing water. A swimming hair is usually present on the genu of leg II of this species, allying it with the North American species mentioned by Cook (1986: 16). As the only described species from the Nearctic region are the lake-dwelling species *P. latipalpus* and *P. orbicularis* (Marshall, 1924, 1929, respectively), it may be a feature restricted to lentic forms.

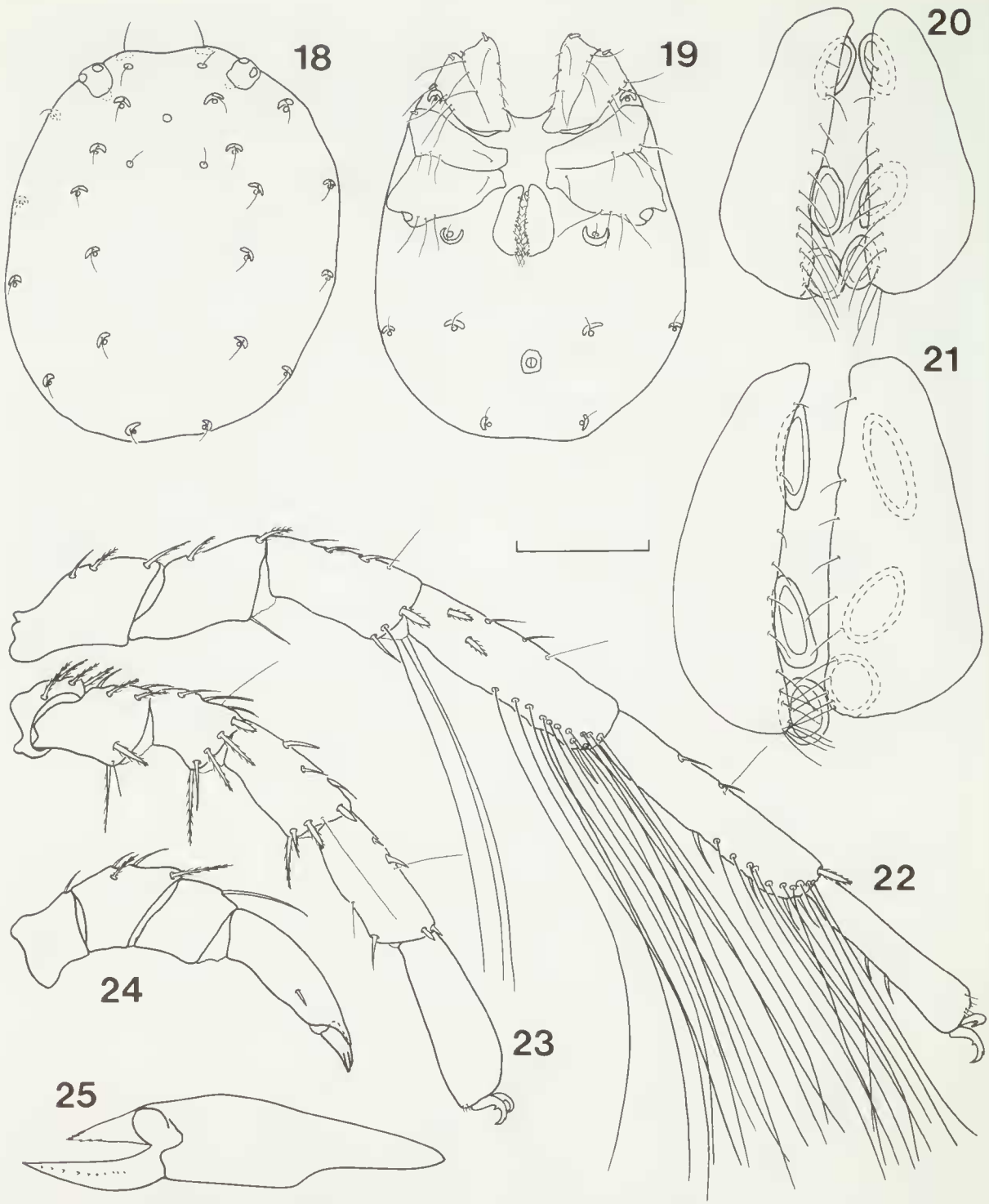
Pseudohydryphantes vepres sp. nov.

Figures 26-35

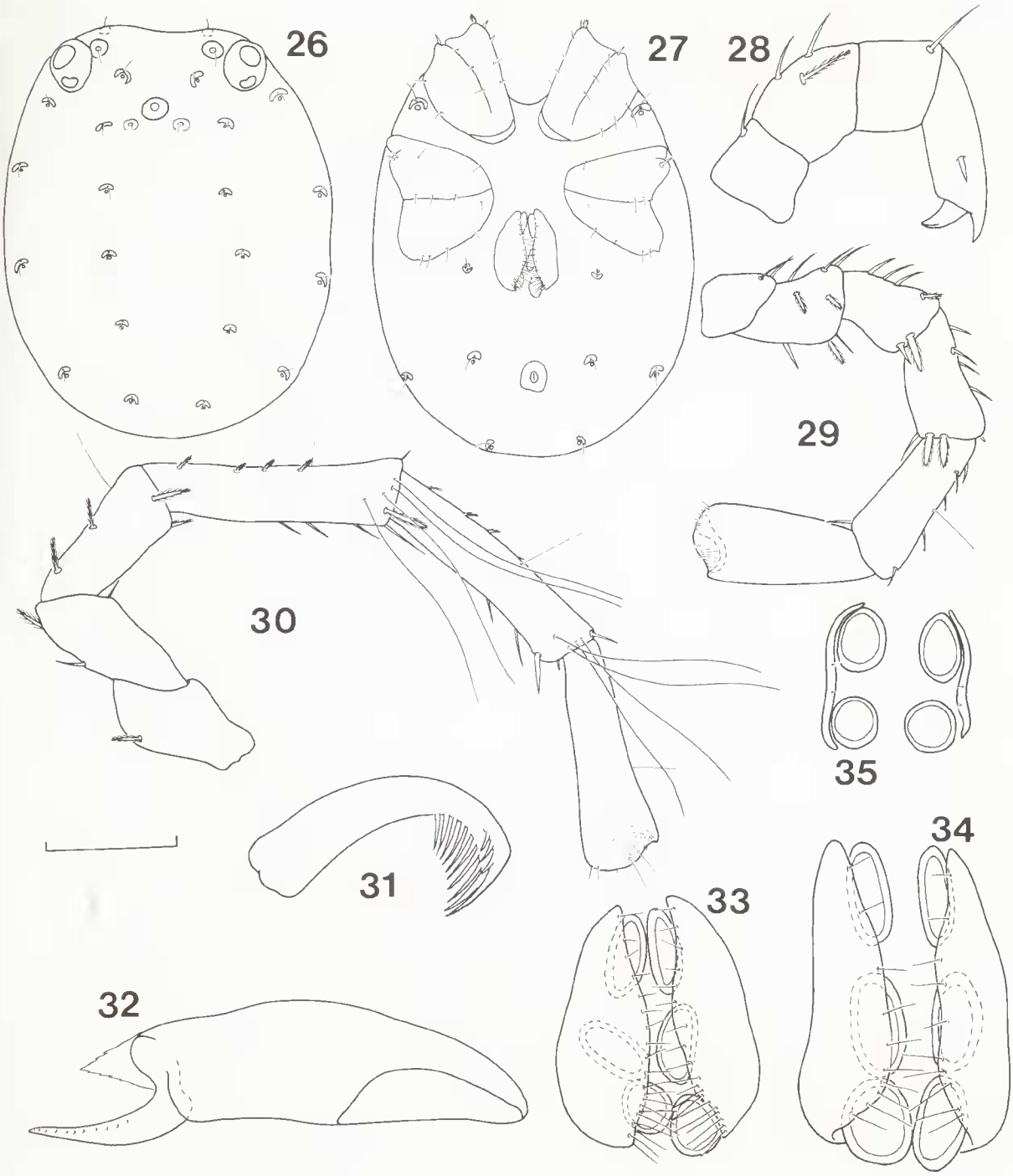
Type material. Holotype: Victoria, Brunton's Bridge, Thomson River (stn T21A), 23 Nov 1979, NMV K227(♂, slide).

Paratypes: Victoria. Same data as holotype, NMV K228(1 ♀, slide). Same data except 14 Mar 1979, NMV K305(1 ♂, fluid). Thomson River, 6 km E of Erica (stn T21), 27 Nov 1976, NMV K306(1 ♂, slide). Junction of Thomson and Aberfeldy Rivers, Fingerboard Spur Track (stn T20), 4 May 1977, NMV K307(1 ♀, fluid).

New South Wales. Thredbo River, 2 km upstream of Thredbo sewage works, Kosciusko National Park, M.E. McKaige, 24 Feb 1982, NMV K308(1 ♂, fluid). Same data except 22 Sep 1982, NMV K309-312(1 ♂, 3 ♀♀, slides and fluid). Same data except 27 Nov 1982, NMV K313(1 deutonymph, fluid). Same data except 29 Jan 1983, NMV K314-319(4 ♂♂, 1 ♀♀, 1 deutonymph, fluid). Same data except 0.3 km upstream of Thredbo sewage works, 28 Jan 1983, NMV K320(1 ♀, fluid). Same data except 27 Nov 1982, NMV K321(1 deutonymph, slide). Same data except at Thredbo sewage works, NMV K322-324(2 ♂♂, 1 ♀, fluid); FMNH(1 ♂, 1 ♀, fluid); CNC(1 ♂, 1 ♀, slides). Same data except 5 km downstream of Thredbo sewage works, 24 Sep 1982,NMV



Figures 18-25. *Pseudohydryphantes doegi* sp. nov. Figs. 18-20, 22-24, holotype male. Fig. 21, paratype female, K302. Fig. 22, paratype female, K301. Fig. 18 Dorsal view. Fig. 19 Ventral view. Fig. 20 Genital field. Fig. 21 Genital field. Fig. 22 Right leg IV. Fig. 23 Right leg I. Fig. 24 Left palp. Fig. 25 Chelicera. Scale line = 250 μm (Figs. 18-19), 70 μm (Figs. 20-21), 100 μm (Figs. 22-25).



Figures 26-35. *Pseudohydryphantes vepres* sp. nov. Figs. 26-28, 33, holotype male. Figs. 29-31, 34, paratype female, K228. Fig. 32, paratype male, K314. Fig. 35, paratype deutonymph, K326. Fig. 26 Dorsal view. Fig. 27 Ventral view. Fig. 28 Left palp. Fig. 29 Right leg I. Fig. 30 Right leg IV. Fig. 31 Claw of right leg IV. Fig. 32 Chelicera. Figs. 33-35 Genital field. Scale line = 190 μm (Figs. 26-27), 70 μm (Figs. 28, 33-35), 100 μm (Figs. 29-30, 32), 20 μm (Fig. 31).

K325-326(1 ♂, 1 deutonymph, slides). Same data except 28 Nov 1982, NMV K327-331(1 ♂, 4 deutonymphs, fluid). Same data except 29 Jan 1983, NMV K332-334(1 ♂, 2 ♀♀, fluid); ANIC (1 male, 1 ♀, fluid); AM KS 15998-15999(1 ♂, 1 ♀, fluid).

Diagnosis. Pedal claws with ventral serrations; sclerites associated with glandularia crescent shaped; chelicerae not elongate.

Description. Adults: Integument papillate. Lateral eyes on ocular tubercles; anterior-lateral eye larger than posterior-lateral eye; preocularia nearly contiguous with lateral eyes; postocularia posterior to median eye (Fig. 26). Six pairs of dorsoglandularia, five pairs of lateroglandularia and five pairs of ventroglandularia present (Figs. 26-27); sclerites associated with glandularia crescent shaped (Figs. 26-27); vg3 on same level as or slightly anterior to anus (Fig. 27). Genital flaps of male wider than those of female, mesal edge with a row of long setae, especially on posterior edge in male (Figs. 33-34); three pairs of acetabula (Figs. 33-34), first pair longest; first two pairs elliptical; third pair ovoid. Ejaculatory complex not studied. Chelicera (Fig. 32) of normal proportions, cheliceral claw curved, with 10-13 short teeth; cheliceral lamella about half as long as claw. Palp (Fig. 28): tibia with a thickened, sub-distal seta on medial surface and with distal extension. Coxae I-III with 1-2 stout, often serrate setae on distal ends (Fig. 27). Legs III and IV (Fig. 30) with swimming setae arranged as follows: leg III: male: telofemur 0, genu 1-2 and tibia 1-4; female: telofemur 0, genu 1, tibia 2; leg IV: male: telofemur 0, genu 1-3, tibia 2-5; female: telofemur 0, genu 1, tibia 2-3. Tarsi with dorsal notch. Pedal claws with large serrations on internal margins and with fewer serrations on external margins that are restricted to distal end; without a dorsal tooth (Fig. 31). Anus surrounded by sclerotized ring (Fig. 27).

Dimensions (μm): male (female): body 650-810/450-490 (850-1160/540-700); capitulum length 200-245 (225-280); chelicera length 240-270 (280-285); genital field 130-165/100-125 (165-190/115-150); palp: trochanter 40-45 (40-45), femur 60-75 (65-80), genu 40-50 (45-55), tibia 100-125 (110-130), tarsus 25-35 (30-35); leg I: trochanter 50-60 (55-65), basifemur 50-60 (45-65), telofemur 70-85 (80-95), genu 90-115 (105-135), tibia 110-140 (135-155), tarsus 130-160/55-60 (150-165/60-65); leg IV: trochanter 70-100 (105-110), basifemur 65-85 (75-95), telofemur 100-120 (105-135), genu 155-195 (180-220), tibia 160-200 (180-220), tarsus 145-185/55-60 (160-180/50-60).

Deutonymphs: Lateral eyes on ocular tubercles. Glandularia as in adults except that vg3 lacks a glandularium and is reduced to a single seta. Genital flaps small, with 2-3 pairs of setae (Fig. 35); two pairs of ovoid acetabula (Fig. 35). Palp and legs as in adults except that slightly fewer swimming setae are present on legs III and IV.

Dimensions (μm): body 450-600/300-330; genital field 60-75/80-90.

Etymology. The specific epithet, Latin *vepres* (brier, bramble) refers to the serrate tarsal claws.

Remarks. Pseudohydryphantes vepres most closely resembles the New Zealand species *P. bebelus* in the possession of serrate tarsal claws, but the serrations of *P. vepres* are larger than those of *P. bebelus*, and *P. vepres* possesses incomplete sclerotized rings surrounding the glandularia, whereas *P. bebelus* possesses complete rings. The reduced number of swimming setae is also diagnostic.

The reduced number of swimming setae suggests that this species may be a poor swimmer, and may be correlated with the large serrations on pedal claws. The collection sites of the Victorian material were described by Malipatil and Blyth (1982).

Pseudohydryphantes occabus sp. nov.

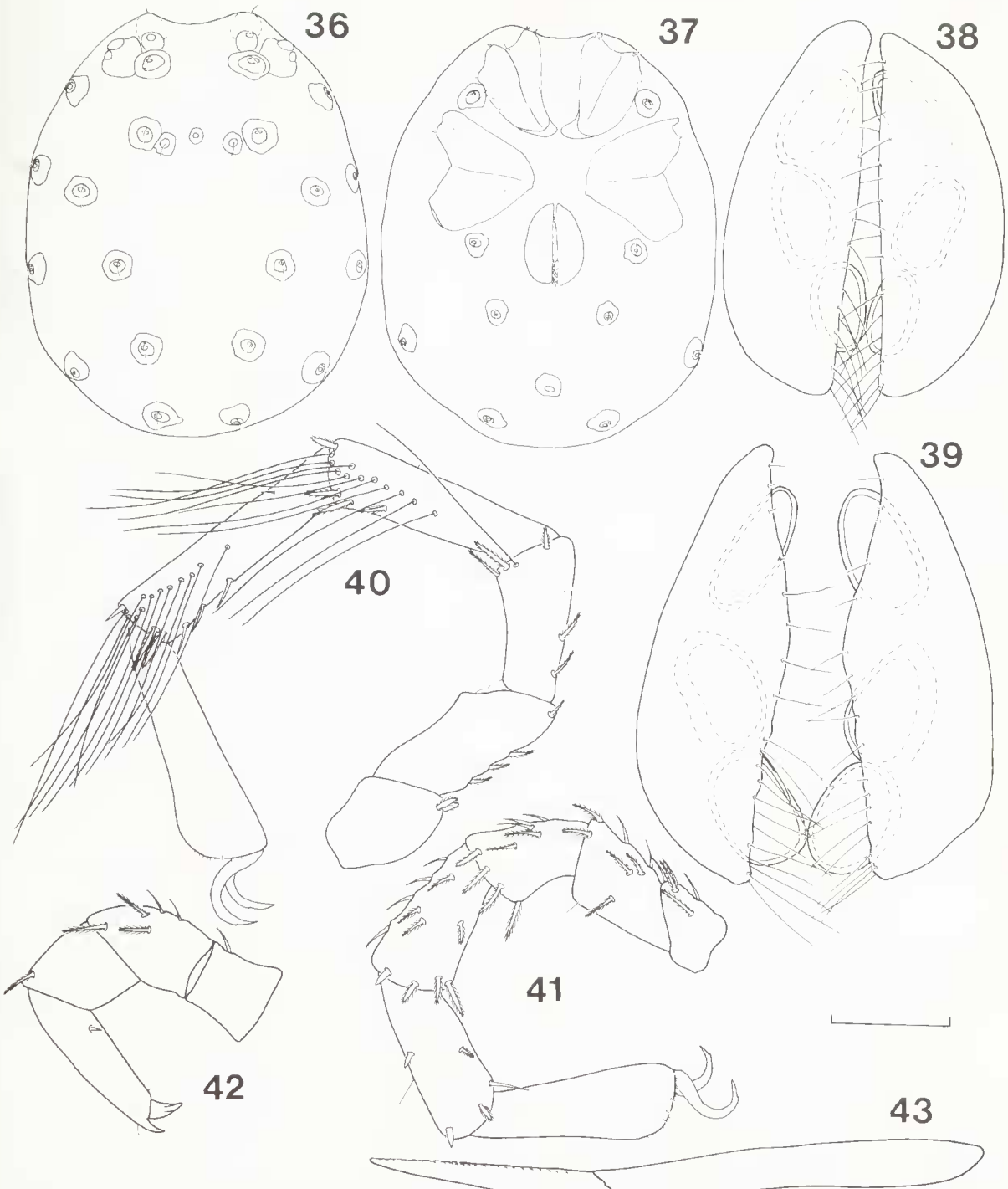
Figures 36-43

Type material. Holotype: Victoria, Shaw Creek, Bennison Plains (stn Mc9-1), 15 Feb 1977, NMV K229(♂, body in fluid, appendages on slide).

Paratypes: Victoria. Same data as holotype, NMV K230(1 ♀, body in fluid, appendages on slide); CNC(1 ♀, slide). Same data except stn Mc9-2, NMV K335(1 ♀, fluid). Mitta Mitta River, 14 km NW of Dartmouth Dam Wall (site 3), 14 Nov 1977,NMV K226(1 ♂, slide).

Diagnosis. Pedal claws ventrally smooth; sclerites associated with glandularia ring shaped; chelicerae elongate.

Description. Integument papillate. Lateral eyes on ocular tubercles; anterior-lateral eye larger than posterior-lateral eye; preocularia approaching lateral eyes, more so in male (Fig. 36); median



Figures 36-43. *Pseudohydryphantes occabus* sp. nov. Figs. 36-38, 40-42, holotype male. Fig. 39, paratype female, K230. Fig. 43, paratype male, K226. Fig. 36 Dorsal view. Fig. 37 Ventral view. Fig. 38 Genital field. Fig. 39 Genital field. Fig. 40 Left Leg IV. Fig. 41 Left leg I. Fig. 42 Right palp. Fig. 43 Right chelicera. Scale line = 300 μm (Figs. 36-37), 70 μm (Figs. 38-39), 100 μm (Figs. 40-43).

eye pigmented; postocularia on same level as median eye and dg3. Six pairs of dorsoglandularia, five pairs of lateroglandularia, and five pairs of ventroglandularia present (Figs. 36-37); dg4 further laterad than dg3 (Fig. 36); vg3 anterior to anus and vg4, closer to genital field (Fig. 37); sclerites associated with glandularia ring shaped (Figs. 36-37). Genital flaps of male wider than those of female, mesal edge with a row of long setae, especially on posterior edge (Figs. 38-39); three pairs of ovoid acetabula (Figs. 38-39). Ejaculatory complex not studied. Chelicera (Fig. 43) very long, claw straight, with 33-34 short teeth; cheliceral lamella apparently absent. Capitulum with long, down-turned anterior extension to accomodate chelicerae. Palp (Fig. 42): tibia with a thickened, sub-basal seta on medial surface, larger in female, and with distal extension. Coxae I-III with 1-2 stout setae on distal ends (Fig. 37). Legs III and IV (Fig. 40) with swimming setae arranged as follows: leg III: male: telofemur 1, genu 11, tibia 12-16; female: telofemur 1, genu 10-12, tibia 9-13; leg IV: male: telofemur 1, genu 10-11, tibia 12; female: telofemur 1-2, genu 14-17, tibia 14-18; mostly on internal face, except for some setae of female which are on external face. Pedal claws without serrations but with a dorsal tooth (Figs. 40-41). Anus surrounded by sclerotized ring (Fig. 37).

Dimensions (μm): male (female): body 950-1060/660-870 (950-1230/810-1060); capitulum length ?; chelicera length ? (660); genital field 200/150-185 (195-235/170-210); palp: trochanter 55-60 (45-70), femur 105-110 (120-130), genu 75-80 (80-90), tibia 180 (195-210), tarsus 35-40 (40); leg I: trochanter 70 (60-65), basifemur 90-95 (85-125), telofemur 100-105 (100-115), genu 130-135 (130-160), tibia 165 (155-190), tarsus 195-200/65 (180-220/70-75); leg IV: trochanter 100-130 (115-140), basifemur 120-130 (115-145), telofemur 145 (145-180), genu 205-210 (205-255), tibia 235-240 (235-295), tarsus 230-240/65 (245-275/60-80).

Etymology. The specific epithet, Latin *occabus* (collar), refers to the completely sclerotized rings surrounding the glandularia.

Remarks. This species is most similar to *P. bebelus* in the possession of complete rings surrounding the glandularia but differs in lacking serrate tarsal claws and in possessing elongate chelicerae. It resembles *P. stylatus* in the possession of elongate chelicerae that fit into a long, down-turned extension of the capitulum, and it resembles males of *P. stylatus* in the possession of a sub-basal seta on the palpal tibia and in the position of vg3 which is anterior to the anus and vg4.

The Shaw Creek site was described by Malipatil and Blyth (1982) and the Mitta Mitta site by Blyth et al. (1984).

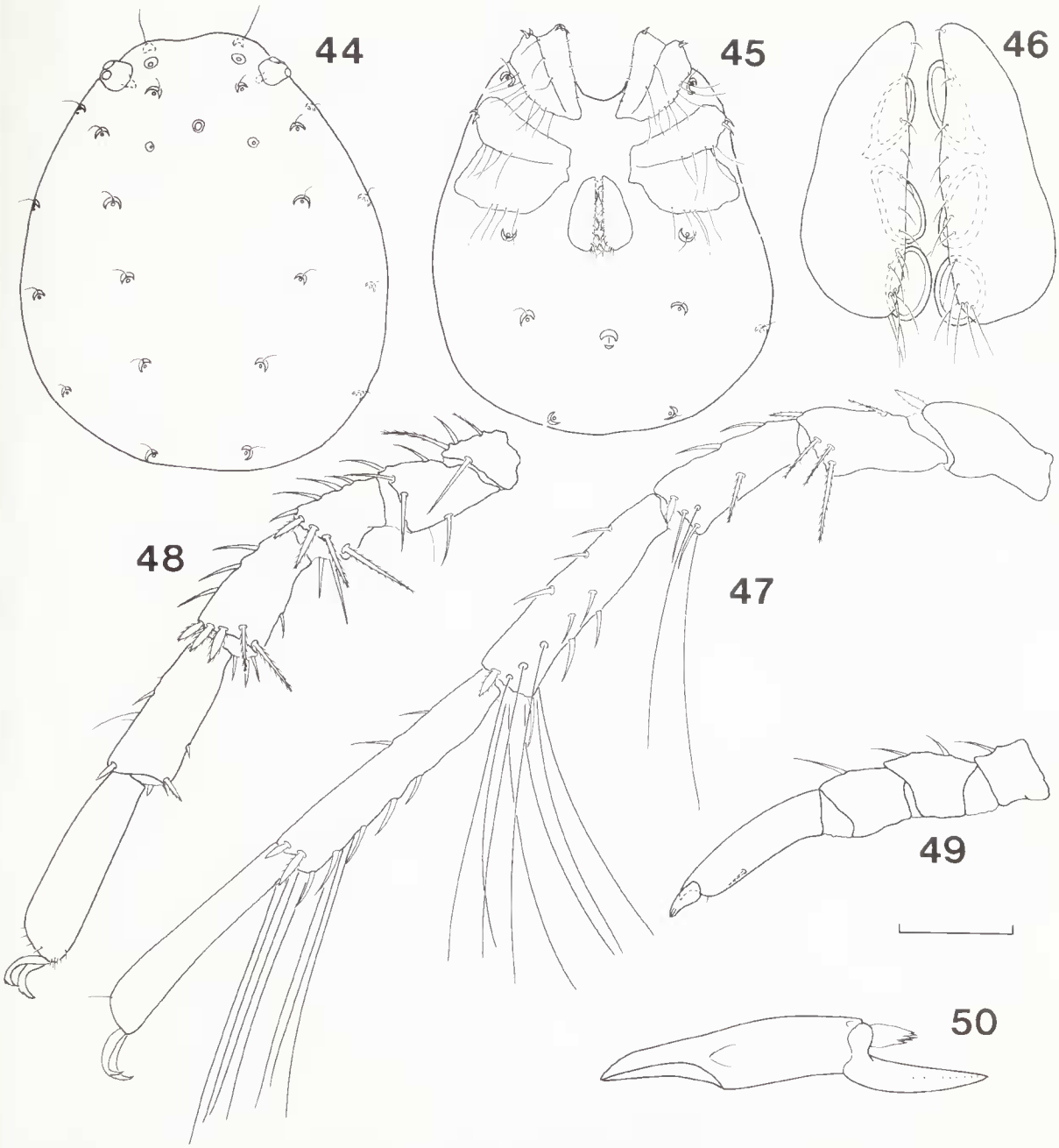
Pseudohydryphantes cooki sp. nov.

Figures 44-50

Type material. Holotype: Victoria, Lerderderg River, 4.8 km WNW of Blackwood, M.S. Harvey and R. St Clair, 8 Jan 1986, NMV K368(♂, slide).

Diagnosis. Pedal claws ventrally smooth; sclerites associated with glandularia crescent shaped; chelicerae not elongate; tarsi not particularly stout.

Description. Male: Integument papillate. Lateral eyes on ocular tubercles; poserior-lateral eye about same size as posterior-lateral eye; postocularia posterior to median eye and to dg3 (Fig. 44). Six pairs of dorsoglandularia, five pairs of lateroglandularia and five pairs of ventroglandularia present (Figs. 44-45); sclerites associated with glandularia crescent shaped (Figs. 44-45); vg3 slightly anterior to anus and vg4 but not approaching genital flaps (Fig. 45). Genital flaps with a mesal row of setae, which are longer posteriorly (Fig. 46); three pairs of acetabula (Fig. 46), first pair longest; first two pairs elliptical, third pair ovoid. Ejaculatory complex with proximal arm slightly longer than proximal chamber. Chelicera (Fig. 50) of normal proporions, cheliceral claw curved, with 14 short teeth; cheliceral lamella nearly half as long as claw, serrate. Capitulum without long, down-turned anterior extension. Palp (Fig. 49): tibia with a thickened sub-distal seta on medial surface and with distal extension. Coxae I-III with 1-3 stout setae on distal ends (Fig. 45). Legs III and IV with swimming setae arranged as follows: leg III: telofemur 2, genu 7-8, tibia 7-8; leg IV: telofemur 2, genu 8, tibia 7. Pedal claws without serrations, but with a dorsal tooth (Figs. 47-48). Anus only partially surrounded by two semi-circular sclerites.



Figures 44-50. *Pseudohydryphantes cooki* sp. nov. Holotype male. Fig. 44 Dorsal view. Fig. 45 Ventral view. Fig. 46 Genital field. Fig. 47 Right leg IV. Fig. 48 Right leg 1. Fig. 49 Left palp. Fig. 50 Left chelicera. Scale line = 250 μm (Figs. 44-45), 70 μm (Fig. 46), 100 μm (Figs. 47-50).

Dimensions (μm): body 990/720; capitulum 235; chelicera length 350; genital field 180/155; palp: trochanter 53, femur 90, genu 77, tibia 162, tarsus 37; leg I: trochanter 65, basifemur 75, telofemur 85, genu 130, tibia 150, tarsus 180/50; leg IV: trochanter 125, basifemur 105, telofemur

150, genu 220, tibia 250, tarsus 220/40.

Etymology. This species is named for Prof. D.R. Cook, who has assisted this project immeasurably.

Remarks. Pseudohydryphantes cooki appears to be most similar to *P. crassipes* from which it is easily separated by the shape of the sclerites associated with the glandularia and the size of the pedal tarsi. The collection site was described by Boulton and Smith (1985).

Cyclohydryphantes Lundblad

Cyclohydryphantes Lundblad, 1941: 111.–Cook, 1974: 89. (Type species *Cyclohydryphantes trabeculiferus* Lundblad, 1941, by original designation.)

Diagnosis. Swimming hairs present on legs III and IV; dorsal plates absent; peripheral glandularia platelets present; lateral eyes on ocular tubercles; median eye present; body not elongate.

Remarks. The genus *Cyclohydryphantes* has until now contained only the type species, *C. trabeculiferus*, from Victoria and Tasmania. The new species described below from north Queensland extends the known distribution of the genus and the subfamily Pseudohydryphantinae into the tropics.

Cyclohydryphantes mutarnee sp. nov.

Figures 51-57

Type material. Holotype: Queensland, Crystal Creek at Bruce Highway near Mutarnee, 18°58'S, 146°17'E, M.S. Harvey and P.J. Vaughan, 13 Jul 1986, NMV K707(♂, slide).

Diagnosis. Body noticably longer than wide, 765 μm in length; tibiae III and IV with 6-8 swimming setae.

Description. Male: Integument papillate. Lateral eyes on ocular tubercles; anterior-lateral eyes larger than posterior-lateral eyes; median eye on same level as dg2 (Fig. 51). Six pairs of dorsoglandularia, five pairs of lateroglandularia and five pairs of ventroglandularia present (Figs. 51-52); dg3 laterally displaced, on same level as postocularia (Fig. 51); sclerites associated with dg4, dg5, dg6 and all ventroglandularia ring-shaped, others with elongate platelets (Figs. 51-52). Genital flaps with a mesal row of setae which are longer posteriorly and with a few small setae scattered on flaps (Fig. 56); three pairs of acetabula (Fig. 56), first two pairs elliptical, third pair ovoid. Ejaculatory complex with proximal arm slightly longer than proximal chamber. Chelicera (Fig. 57) of normal proportions, cheliceral claw curved, with 15 short teeth; cheliceral lamella over half as long as claw. Capitulum without long, downturned anterior extension. Palp (Fig. 53): tibia with a thickened sub-distal seta on medial surface and with distal extension. Coxae I, II and III with 1-2 stout setae on distal ends (Fig. 52). Legs III and IV with swimming setae arranged as follows: leg III: telofemur 1, genu 7, tibia 6-7; leg IV: telofemur 2, genu 7, tibia 7-8. Pedal claws without serrations, but with a dorsal tooth (Figs. 54-55). Anus surrounded by sclerotized ring (Fig. 52).

Dimensions (μm): body 765/555; capitulum length ?, chelicera length 270; genital field 145/115; palp: trochanter 40, femur 85, genu 50, tibia 125, tarsus 35; leg I: trochanter 50, basifemur 65, telofemur 75, genu 95, tibia 110, tarsus 135/50; leg IV: trochanter 90, basifemur 85, telofemur 95, genu 145, tibia 160, tarsus 150/40.

Etymology. The specific epithet is a noun in apposition derived from the type locality.

Remarks. Cyclohydryphantes mutarnee is much smaller and more elongate than *C. trabeculiferus* (a male of *C. trabeculiferus* from Tasmania in the Museum of Victoria is 1405 μm in length), and the arrangement of the lateral glandularia platelets is different.

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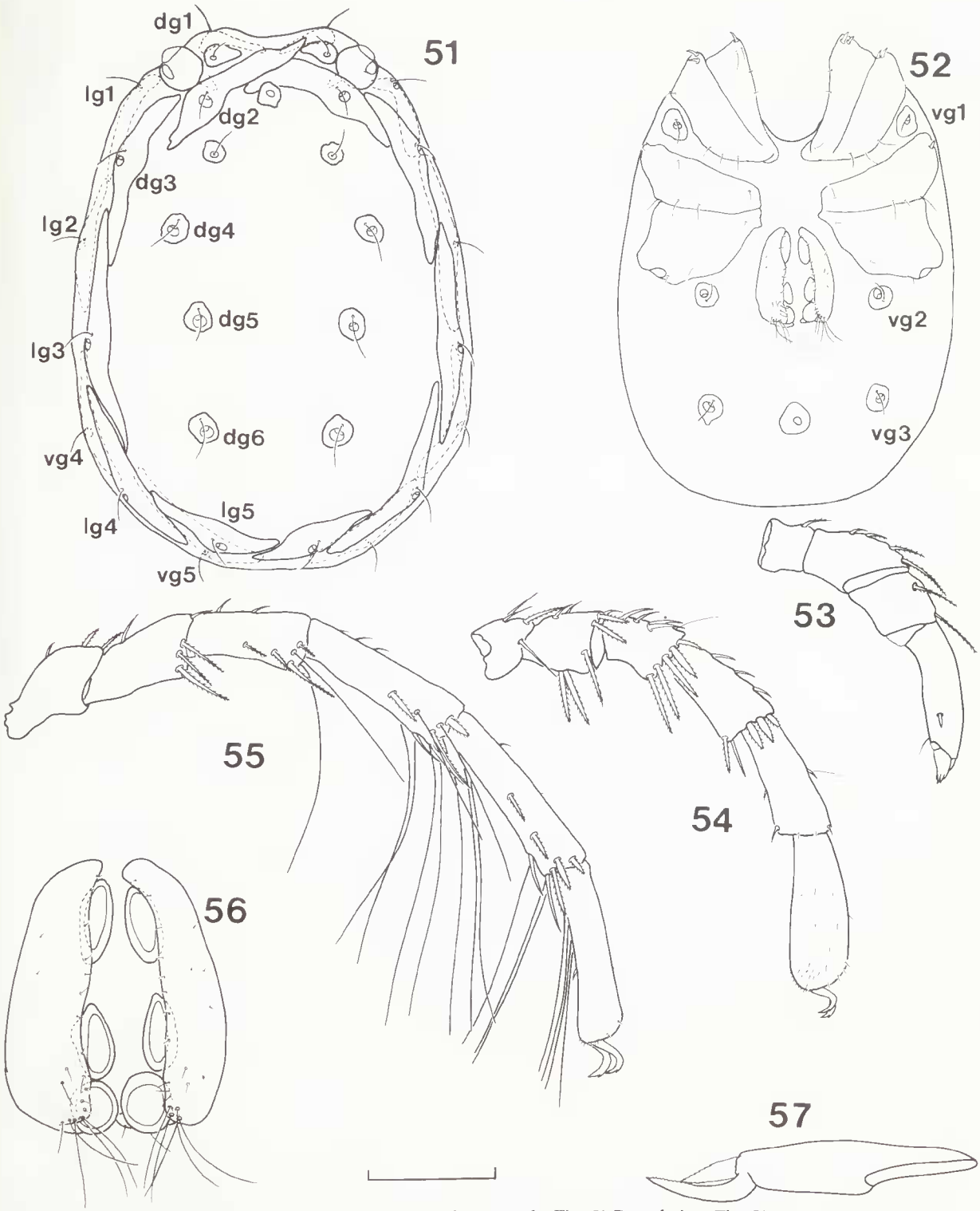

Figures 51-57. *Cyclohydryphantes mutarnee* sp. nov. Holotype male. Fig. 51 Dorsal view. Fig. 52 Ventral view. Fig. 53 Left palp. Fig. 54 Left leg I. Fig. 55 Left leg IV. Fig. 56 Genital field. Fig. 57 Left chelicera. Scale line = 170 μm (Figs. 51-52), 100 μm (Figs. 53-55, 57), 70 μm (Fig. 56).

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